

CLAIMS

1. A method for implementing an adaptive channel estimator, comprising:

determining from a received signal at least one variable representing statistical characteristics of the channel,

determining a prefilter by means of at least one variable representing the statistical characteristics of the channel,

adapting sample rate of the prefilter output for a channel estimator.

2. The method of claim 1, wherein the statistical variable is Doppler spread, the form of Doppler power spectrum, the width of Doppler power spectrum, the speed of a radio transmitter, channel coherence time, correlation between channel measurements or signal-to-noise ratio.

3. The method of claim 1, wherein the sample rate is adapted by decimation.

4. The method of claim 1, wherein the sample rate is adapted by interpolation.

5. The method of claim 1, wherein the sample rate is adapted in relation to the prefilter input signal and the at least one variable representing the statistical characteristics of channel determined from the received signal.

6. The method of claim 1, wherein the length of the channel estimator is constant.

7. The method of claim 1, wherein the Doppler spread is measured at the prefilter input.

8. The method of claim 1, wherein the Doppler spread is measured at the prefilter output.

9. The method of claim 1, wherein the Doppler spread or the correlation between the channel measurements are kept at least substantially constant by means of feedback at the prefilter output.

10. The method of claim 1, wherein the bandwidth of the decimator and interpolator filters changes in relation to a change in the sample rate.

11. A prefiltering arrangement for implementing an adaptive channel estimator, the prefiltering arrangement comprising:

means for determining from a received signal at least one variable representing statistical characteristics of the channel,

means for determining the number of prefilter taps by means of at least one variable representing the statistical characteristics of the channel,
 means for adapting sample rate of the prefilter output for a channel estimator.

12. The prefiltering arrangement of claim 11, wherein the statistical variable is Doppler spread, form of Doppler power spectrum, width of Doppler power spectrum, speed of a radio transmitter, channel coherence time, correlation between channel measurements or signal-to-noise ratio.

13. The prefiltering arrangement of claim 11, the arrangement comprising means for adapting the sample rate by decimation.

14. The prefiltering arrangement of claim 11, the arrangement comprising means for adapting the sample rate by interpolation.

15. The prefiltering arrangement of claim 11, the arrangement comprising means for adapting the sample rate in relation to the prefilter input signal and the at least one variable representing the statistical characteristics of the channel determined from the received signal.

16. The prefiltering arrangement of claim 11, wherein the length of the channel estimator is constant.

17. The prefiltering arrangement of claim 11, wherein the arrangement comprises means for measuring Doppler spread at the prefilter input.

18. The prefiltering arrangement of claim 11, wherein the arrangement comprises means for measuring Doppler spread at the prefilter output.

19. The prefiltering arrangement of claim 11, wherein the Doppler spread or the correlation between the channel measurements is kept at least substantially constant by means of feedback at the prefilter output.

20. The prefiltering arrangement of claim 11, wherein the bandwidth of the decimator and interpolator filters changes in relation to a change in the sample rate.

21. A base station, in which a channel estimator input signal is adapted, the base station comprising:

means for determining from a received signal at least one variable representing statistical characteristics of the channel,

means for determining the number of prefilter taps by means of at least one variable representing the statistical characteristics of the channel,

means for adapting sample rate of the prefilter output for a channel estimator.

22. The base station of claim 21, wherein the statistical variable is Doppler spread, form of Doppler power spectrum, width of Doppler power spectrum, speed of a radio transmitter, channel coherence time, correlation between channel measurements or signal-to-noise ratio.

23. The base station of claim 21, wherein the base station comprises means for adapting the sample rate by decimation.

24. The base station of claim 21, wherein the base station comprises means for adapting the sample rate by interpolation.

25. The base station of claim 21, wherein the arrangement comprises means for adapting the sample rate in relation to the prefilter input signal and the variable representing the statistical characteristics of the channel determined from the received signal.

26. The base station of claim 21, wherein the length of the channel estimator is constant.

27. The base station of claim 21, wherein the arrangement comprises means for measuring the Doppler spread at the prefilter input.

28. The base station of claim 21, wherein the arrangement comprises means for measuring the Doppler spread at the prefilter output.

29. The base station of claim 21, wherein the Doppler spread or the correlation between the channel measurements is kept at least substantially constant at the prefilter output.

30. The base station of claim 21, wherein the bandwidth of the decimator and interpolator filters changes in relation to a change in the sample rate.